



Brochure for Use of GRS Reports and Website Guide



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The GRS Report



GEMSTONE REPORT EDELSTEINBERICHT RAPPORT DE PIERRE PRÉCIEUSE PLATINUM RARITY AWARD ISSUE

No GRS2002-sample (Award No sample)
Date September 2002
Object One magnificent gemstone
Identification **Natural Ruby**



Weight 8.01 ct
Dimension 12.64 x 9.81 x 7.05 (mm)
Cut brilliant/step
Shape cushion
Color vivid red (GRS type "pigeon's blood")
Comment No indication of thermal treatment

Dieser Edelsteinbericht wird nur unter der Voraussetzung abgegeben, dass die wichtigen Information auf der Rückseite als Vertragsbestandteil mit der GRS Gemresearch Swisslab AG akzeptiert worden sind. Spezielle Beachtung ist der Handhabung mit der Deklaration von Behandlungen zu schenken.



Origin

Gemmological testing revealed characteristics corresponding to those of a natural ruby from:

Burma (Myanmar)

Quality and Rarity

Very rare combination of size, color variety, fine brilliancy and absence of heat enhancement.



safety hologram

Peretti

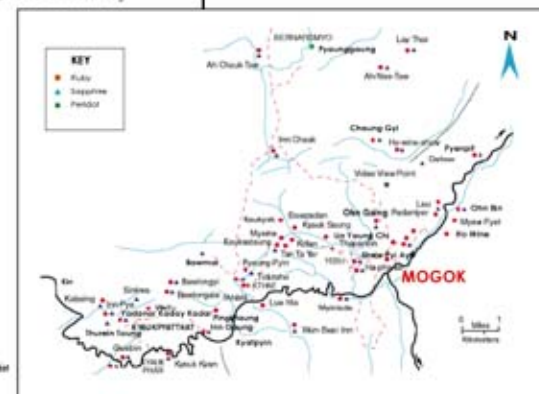
Dr. A. Peretti FGG FGA



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Rubies in the mother rock



Mogok Mining Map

INTERNET
www.gemresearch.ch
www.swissreports.com

GRS Gemresearch Swisslab Gemstone Reports are issued under condition that the information and limitation on reverse side form an integral part of the relevant contract with GRS Gemresearch Swisslab AG. Please note the regulations governing the declaration of gemstone treatment.



IDENTITY OF THE GEMSTONE



COMMENT ON TREATMENT

TERMS AND CONDITIONS

INTERPRETATION

PROFESSIONALISM
 CONTACT ADDRESS
 INTERNET SUPPORT

INTERPRETATION

Origin

Gemmological testing revealed characteristics corresponding to those of a natural ruby from:

Burma (Myanmar)

Determination of the authenticity and country of origin of a gemstone is based on the chemical and physical properties of the gemstone under investigation and its internal characteristics (e.g. inclusions and growth structures) using gemmological instruments and modern analytical instruments including spectrometers. The conclusion on the country of origin, authenticity, and treatment of a gemstone is an opinion of the laboratory based on the direct comparison of the findings with those obtained from the analyses of reference materials, as well as those in published literature. This knowledge is continuously updated by the laboratory to the extent reasonably possible.

IDENTITY OF THE GEMSTONE

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GRS GemResearch Swisslab Gemstone Reports are issued for the purpose of identifying gemstones, through photographic images, descriptions, weight, dimensions, cut and color, and stating an opinion on their authenticity, treatment (in the comment section), country of origin, quality and rarity. An "intermittent fingerprint" of the investigated gemstone is stored at our data bank.



Study of the Kashmir sapphires at the mine site in Northern India



Study of the Burmese Rubies at the mine site in Mogok (Burma, Myanmar)



Dr. A. Peretti - www.gemresearch.ch - graduated from the Institute of Mineralogy and Petrography at the Swiss Federal Institute of Technology (SFIT) in Zurich (Switzerland) with a PhD on "Occurrence and Stabilities of Minerals". He also holds an award from the University of Zurich (Switzerland) for his Master thesis focussed on "Tectonics and Metamorphism in the Alps" and is acknowledged by both the British and German Gemological Associations (FGA and FGG). From 1989 to 1992, he was director of the Gübelin Gemological Laboratory and in 1996 he founded GRS - an internationally active private gemological research company. The professional activities of Dr. A. Peretti have been certified by the European Federation of Geologists (Paris, France), and he was awarded the title "European Geologist" in 2000.

Professionalism

Dr. Peretti's daily laboratory work (including expeditions to mines, visiting cutting and treating centers, and cooperating with Universities and research scientists) has enabled him to contribute articles on gemology and mineralogy to publications such as Gems and Gemology (USA), Journal of Gemology (GB), Neue Zürcher Zeitung (Switzerland) and Contributions to Mineralogy and Petrology. Currently, he is the director of GRS Gemresearch Swisslab LTD. (GRS), (Lucerne, Switzerland) and GRS (Thailand) Co. LTD. (Bangkok, Thailand).



Pictures: Dr. A. Peretti collects reference materials at the Ruby mines in Burma and tests rough rubies at the mining site using a portable laboratory including a microscope in 2002.



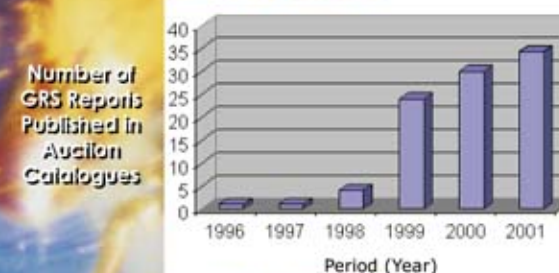
Dr. A. Peretti during routine testing of gemstones using a 60x binocular microscope and fibre optic illumination.

GRS International

GRS Reports are internationally accepted at the most recognized auction houses, as well as on all levels of the gemstone trading (wholesale and retail). List of objects auctioned with GRS Reports are published under the website address above.

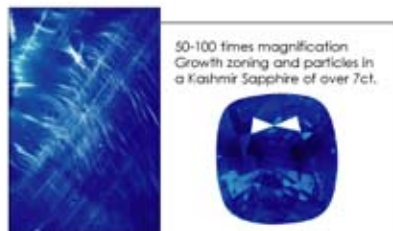


Jewelry by Nash Kelly, Pictures by Anong

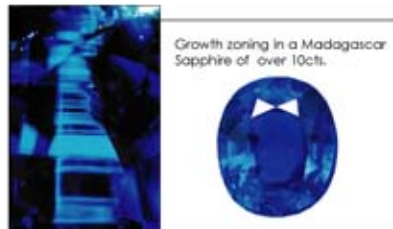


GRS Reports appearing at internationally recognized Jewellery auctions in Geneva, St. Moritz, London, New York, Hong Kong, Milano and Paris between 1996 and 2001

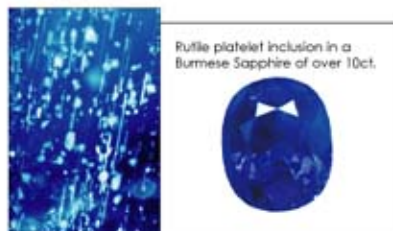
Research Message



50-100 times magnification
Growth zoning and particles in
a Kashmir Sapphire of over 7ct.



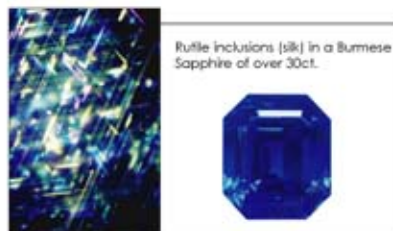
Growth zoning in a Madagascar
Sapphire of over 10ct.



Rutile platelet inclusion in a
Burmese Sapphire of over 10ct.



Folded fluid inclusion feather
in a Burmese Sapphire of over
30ct.



Rutile inclusions (silk) in a Burmese
Sapphire of over 30ct.



GRS (GRS Gemresearch Swisslab LTD, Switzerland) is a private gemological research company whose aim is to bring leadership and detailed information on important gemological subjects to the public and the trade. The activities of GRS are focused on the identification of gemstones from all over the world. These include high-quality gems from newly opened mines and gem imitations and synthetics. Methods are constantly being developed for producing imitations of precious gems, such as rubies, sapphires, diamonds and emeralds. In addition to new synthesis methods, thermal and radiation treatments are being developed to improve the appearance and beauty of gemstones. To find the true nature of a gemstone, and consequently its value, the systematic review of gems from new mines and the research and identification of synthetic and treated gemstones have become increasingly important. Active, in-depth research utilizing sophisticated scientific methods is the best insurance for high standards. The GRS gemological reports, documenting authenticity and origin of gemstones are internationally accepted and trusted throughout the world. To show its commitment, GRS invests much of its resources and time on research and continuously publishes the results in leading specialized journals.



LASER ABLATION ICP-MS Analyses in the Laboratory of Inorganic Chemistry at the ETH Zurich (Switzerland). Prof. D. Günther and Dr. A. Peretti discuss measuring strategies.

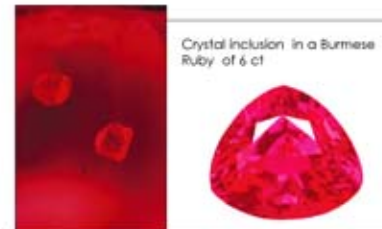
GRS aims to become a leader in the field of gemological research. To facilitate this goal, it has developed an in-depth cooperation with scientific partners in Swiss Universities. Travel expeditions and studies of remote gem deposits provide the necessary research materials. Further activities include the visits to highly sophisticated synthetic gem producing laboratories. The constant monitoring of new gemstone treating technologies allows GRS to identify and distinguish "Synthetic" from "Treated", "Enhanced" and "Un-Enhanced" gemstones.



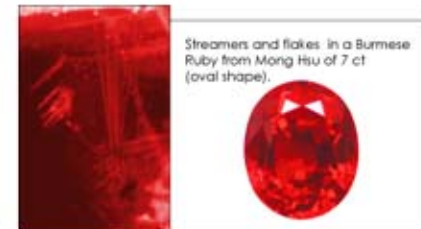
Healing feathers in a Burmese
Ruby of 3 ct (round shape).



Silk inclusion in a Burmese Ruby of
over 8 ct (cushion shape).



Crystal inclusion in a Burmese
Ruby of 6 ct



Streamers and flakes in a Burmese
Ruby from Mong Hsu of 7 ct
(oval shape).



All the inclusions shown above are found in rubies and sapphires unenhanced by heat.



Mapping and documenting mining sites in Burma (Mogok, Myanmar) and collecting reference materials in 2002.



58ct Burmese Gem Quality Rough Ruby

Continuously documenting and publishing gemological research is indispensable for increasing public confidence in the true value and appreciation of gemstones. To show its contribution to gemology, GRS makes its non-confidential research available through its website (<http://www.gemresearch.ch>) and through its own forthcoming journal "Contributions to Gemology".

A. Peretti

Dr. A. Peretti
Director of GRS

Products and Prices



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GRS Gemresearch Swisslab AG strives for new dimensions in gemological research in taking advantage of the newly established strong ties to academic research through its new board of advisors (from left to right):

Dr. A. Peretti, FGG, FGA, Eur Geol
 GRS Gemresearch Swisslab AG, P.O.Box 4028, 6002 Lucerne,
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 (Gemological Research)

Prof. Dr. B. Grobely, Institute of Mineralogy and Petrography,
 University of Fribourg, Fribourg, Switzerland
 (Mineralogy and Special Methods)

Prof. Dr. W. Oberholzer, Institute of Mineralogy and Petrology,
 Swiss Federal Institute of Technology (ETH), Zurich,
 Switzerland,
 Former Curator of the Mineralogical Museum (ETH ZH).

PD. Dr. J. Mullis, Institute of Mineralogy and Petrography,
 University of Basel, Basel, Switzerland
 (Solid and Fluid Inclusion Analysis)

Prof. Dr. D. Günther, Institute of Chemistry, ETH (SFI), Zurich,
 Switzerland (Laser Ablation-ICP-MS, Chemical Analysis)



Message of the board of advisors to the trade see
www.gemresearch.ch/grsboard.htm

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1	One GRS Report	100.- US \$ (per gemstone)
2	Duplicate GRS Report	50.- US \$ (per gemstone)
3	GRS Reports of Laser Inscribed Gemstones	150.- US \$ (per gemstone)



Voucher for one report (Express 2 vouchers)

4	No. of Vouchers : 400 and more	50.- US \$ per Voucher
5	300	60.- US \$ per Voucher
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Award hologram

All prices exclude VAT and shipping costs

Peretti, A. (1988): Occurrence and Stabilities of Opaque Minerals in the Malenco Serpentinite (Sondrio, Italy), PhD thesis, No. 8740, Swiss Federal Institute of Technology, Zurich, Switzerland.

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Peretti, A. was supported by the Swiss National Science Foundation (SNCF) project No. 2.601-0.85 and project No. 2.4728- 0.87). Janggen-Poehn Foundation (Switzerland) and the Wolfermann-Naegeli Foundation (Switzerland). He received awards from the Foundation SJF (Schweizer Jugend Forsch) the University of Zurich (Switzerland) and the Award of Excellence from the Thal Gem and Jewellery Trade Association (TGJTA). He holds the titles: dipl. petrogr. (University of Zurich), Dr.sc.nat. SFlt (Zurich), Eur Geol (European Geologist, Paris, France), FGG and FGA (Gemmological titles, Germany and Great Britain)

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If not expressly disagreed by the client, the enhancement of rubies and sapphires are mentioned under comments as following:

- **No indication of thermal treatment:** No gemological constraints (for instance no altered inclusions) are present which would indicate that a heat enhancement process was applied.
 - **E Clarity and/or color are enhanced by heat.** Minor residues of foreign solid materials may be present within fissures and/or cavities. The applied type of enhancement of the ruby or sapphire under consideration is, according to the opinion of GRS Gemresearch Swisslab, considered a permanent enhancement. Detailed analyses of the residues present in the gemstone includes the following grading:
 - **H Enhanced by heat (no residues present).**
 - **E or H (a) Enhanced by heat, residue insignificant** (indication of very small residues within fissures only).
 - **E or H (b) enhanced by heat, minor residues are present** (within fissures only).
 - **H (c) is a transitional grade between H (b) and H (d).**
 - **H (d) enhanced by heat, significant residues present** (within fissures and cavities).
 - **H(Be) Enhanced by heat and light elements (e.g. Beryllium).** Our research code E (IM). Clarity and/or color are enhanced by heat and diffusion of light elements such as Beryllium, inducing color zoning by internal migration of trace elements (incl. Beryllium) and defects, and formation of color centers. (Not corresponding to conventional surface diffusion treatment). Treatment is permanent. Recutting requires special care if this orange rim is confined to the surface. See Internet publication <http://www.gemresearch.ch/journal/index.htm>
- CE(O): Grading of Clarity Enhancement of Emeralds specified as None, Insignificant, Minor, Moderate, Significant.** "Dried out features" indicates that materials described in category (O) are removed from cracks and that the gemstone's clarity can potentially be improved in a later stage by a treatment.
- Other treatments will be specified on the front page as following:**
- C.) Coating, D.) Dyeing, O.) Significant application of colored and/or colorless oil and/or epoxy-like resins and/or wax, R.) Irradiation, use of nuclear bombardment, U.) Surface diffusion, or any combination of the above.

The opinion on the Quality and Rarity of the gemstone under investigation is issued only upon request and represents an opinion based on the practical experience of the laboratory. The laboratory may refuse the issuance of a Gemstone Report at any time. Unless expressly agreed upon otherwise, the client agrees not to hold GRS Gemresearch Swisslab liable for the loss or damage of the gemstone resulting from risks that may occur during the transportation and delivery process, including robbery and theft; during the examination process, including color and clarity alteration, or other alteration of gem material, including removal of fissure fillings in the gem material; and while the gemstone is in the possession of GRS Gemresearch Swisslab, including theft negligence and natural acts of God. And, unless expressly agreed otherwise, GRS Gemresearch Swisslab cannot be held responsible for any consequences resulting from incomplete or erroneous data in this report; such as errors in dimension and weight measurements; typing errors; and errors in the determination of the authenticity, the country of origin, and errors in the declaration of treatments. Furthermore, the client and all other persons to whom the client may distribute, show, or transfer this Gemstone Report, for any use and for any purpose cannot hold GRS Gemresearch Swisslab liable.

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